

New species and records of *Melaloncha* (*Udamochiras*) bee-killing flies (Diptera: Phoridae)

LISA GONZALEZ & BRIAN V. BROWN

Entomology Section, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA, 90007, USA. Email: lisagee@robothq.org, bbrown@nhm.org

Table of contents

Abstract	1
Introduction	2
<i>Melaloncha</i> Brues, 1904, subgenus <i>Udamochiras</i> Enderlein, 1912	3
<i>Melaloncha colossia</i> (Enderlein)	3
<i>Melaloncha concavella</i> -subgroup	3
<i>Melaloncha concavella</i> new species	4
<i>Melaloncha cucharella</i> new species	4
Other <i>Udamochiras</i> species (not classified in any subgroups)	6
<i>Melaloncha altobenia</i> new species	6
<i>Melaloncha ancistra</i> new species	8
<i>Melaloncha atribiseta</i> new species	9
<i>Melaloncha corniculata</i> new species	10
<i>Melaloncha sarmientoi</i> new species	11
<i>Melaloncha schiaffinoae</i> new species	11
<i>Melaloncha stenotes</i> new species	12
Acknowledgments	13
References	14

Abstract

Nine new species of Neotropical *Melaloncha* (*Udamochiras*) bee-killing flies are described: *M. altobenia*, *atribiseta*, *concavella* and *sarmientoi* from Bolivia, *M. ancistra* from Colombia, *M. corniculata* and *schiaffinoae* from Argentina, *M. cucharella* from Honduras, and *M. stenotes* from Costa Rica. The first host information is given for *M. (U.) colossia*, which attacks introduced honey bees (*Apis mellifera* L.) in northern Argentina.

Key words: Diptera, Phoridae, parasitoid, Neotropical

Introduction

The bee-killing fly genus *Melaloncha* is a group of Neotropical flies that is currently being revised (Brown 2001, 2004a, 2004b). They are relatively colorful phorids with interesting behaviors as they attack their hosts, mostly stingless bees (Hymenoptera: Apidae: Meliponini), but also bumble bees (*Bombus* sp.) and introduced honey bees (*Apis mellifera* L.). Originally a small group of 32 described species, we now know that the actual number of species is between 200 and 300.

In his first taxonomic paper on *Melaloncha*, Brown (2004a) organized the genus into two subgenera, *Melaloncha* s.s. and *Udamochiras*. He also described all the species of *Udamochiras* known to date, a total of 42 species. Since this time, field collecting of specimens has continued, and the nine further species have accumulated. These new species are described herein, but little is known of their relationships. A combined morphological and molecular study of *Melaloncha* phylogeny is being conducted by Brown & Smith (in prep.); this study will include specimens of many of the new species described below.

Although the subgenus *Udamochiras* now numbers 51 species, more than was previously known for the entire genus, there is no evidence that all species have been collected. Vast areas of South and Central America have not been sampled, so we expect new species to continually be encountered.

Methods & Material

This revision is based exclusively on female specimens. Males of *Melaloncha* are extremely similar (at least within subgroups) and show too few differences to be useful in characterizing species.

All specimens are barcoded, with their data stored at the LACM. Barcode data for holotypes is presented in square brackets for their easy identification.

Material is deposited in the following collections (for more details on collections, see Arnett et al., 1993):

CBFC Colección Boliviana de Fauna, La Paz, Bolivia.

EMUS Utah State University, Logan, USA.

INBC Instituto Nacional de Biodiversidad, Heredia, Costa Rica.

LACM Natural History Museum of Los Angeles County, USA.

MACN Museo Argentina de Ciencias Naturales, Buenos Aires, Argentina

UNCB Universidad Nacional de Colombia, Bogotá.

Brown (2004a) presented a standard description for species of *Udamochiras* that should be consulted for an overall impression of their body form and color. However, in order to facilitate identification of these new taxa, color photographs of all species are

posted on Brown's web site, currently at www.phorid.net/phoridae/melaloncha/udamochiras.html. Additionally, a new, updated key to all species of *Udamochiras* has been posted on this web site.

Taxonomy

Melaloncha Brues, 1904, subgenus *Udamochiras* Enderlein, 1912

Type species: *Udamochiras colossia* Enderlein, 1912, by original designation.

Remarks. A synonymy, key, and all species descriptions are in Brown (2004a). Note that there is an important error in the key: the second lead of couplet 7 should lead to couplet 38, not couplet 40.

Melaloncha colossia (Enderlein)

Description. This species was redescribed and illustrated by Brown (2004a).

Host. Previously, there was no host information available for this species. We observed females attacking feral honey bees (*A. mellifera*) attracted to organic waste or to honey spray at Urugua-í in Argentina. Flies darted at stationary bees while in flight, attacks that were often repulsed by the bee's wing fanning.

Distribution. Brazil, plus new records (below) from Argentina and Bolivia.

New Material Examined. ARGENTINA: Misiones: Reserva Vida Silvestre Urugua-í, 25.97°S, 54.11°W, 5 ♀, 10.xii.2003, 2 ♀, 11.xii.2003, 8 ♀, 12.xii.2003, 4 ♀, 15.xii.2003, 4 ♀, 17.xii.2003, 12 ♀, 18.xii.2003, 2 ♀, 21.xii.2003, 3 ♀, 22.xii.2003, 11 ♀, 27.xii.2003, 9 ♀, 28.xii.2003, 7 ♀, 29.xii.2003, B. Brown, L. Gonzalez, G. Kung, honey spray, or organic waste, 400 m (EMUS, LACM, MACN). BOLIVIA: La Paz: 40 km N Caranavi, Cumbre Alto Beni, 15.83°S, 67.56°W, 1 ♀, 17.iv.2004, E. Zumbado, honey spray, 1600 m (LACM).

Melaloncha concavella-subgroup

Remarks. In keeping with the practice established by Brown (2004a), clearly related species are classified in informal groups. The species of the *M. concavella*-subgroup, as well as all others in this paper, are part of the *M. colossia*-group of species (Brown, 2004a: 14).

Diagnosis. Posterodorsal apex of ovipositor with deep concavity.

Included species. *M. concavella* n. sp., *M. cucharella* n. sp.

***Melaloncha concavella* new species**

Fig. 1

Recognition. This species is similar to *M. cucharella* n. sp. which has a similar concavity, but unlike that species the concavity of *M. concavella* is lightly colored and almost membranous. In the key of Brown (2004a), this species keys to couplet 38 (once the error in couplet 7 is fixed, see above), where it agrees with *M. trua* Brown in having a dorsally concave ovipositor. In *M. concavella*, however, the ovipositor is much more narrow in dorsal view, and the concavity is much more clearly defined.

Description. Female (male unknown). Body length 2.8–3.1 mm. Mean frontal ratio 0.26 head width; range 0.26–0.27. Frons orange except ocellar triangle black; shiny, sparsely punctate with fine, small setulae; median furrow present, broad. Dorsal interfrontal setae absent. Palpus unmodified. Ocular and genal setae yellow, flattened. Forelegs, including foretarsomeres, uniformly brownish yellow. Combined length of foretarsomeres 0.75 tibial length. Mid- and hind legs brownish yellow; hind femur with dark brown macula at apex. Mean costal length 0.55 wing length; range 0.55–0.56. Abdominal tergites black, with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with few extremely fine setae. Ovipositor slightly curved ventrally, with only short, fine setae throughout. Dorsum of ovipositor with slight expansion before apex, and apical concavity; integument of concavity extremely thin, light-colored, and inflated in alcohol-preserved specimens.

Host. The flies were attracted to and darted at an aggregation of *Trigona branneri* Cockerell on rotten bananas in a small banana plantation.

Distribution. Bolivia.

Derivation of specific epithet. Latin *concavus*, referring to the dorsoapical concavity of the ovipositor.

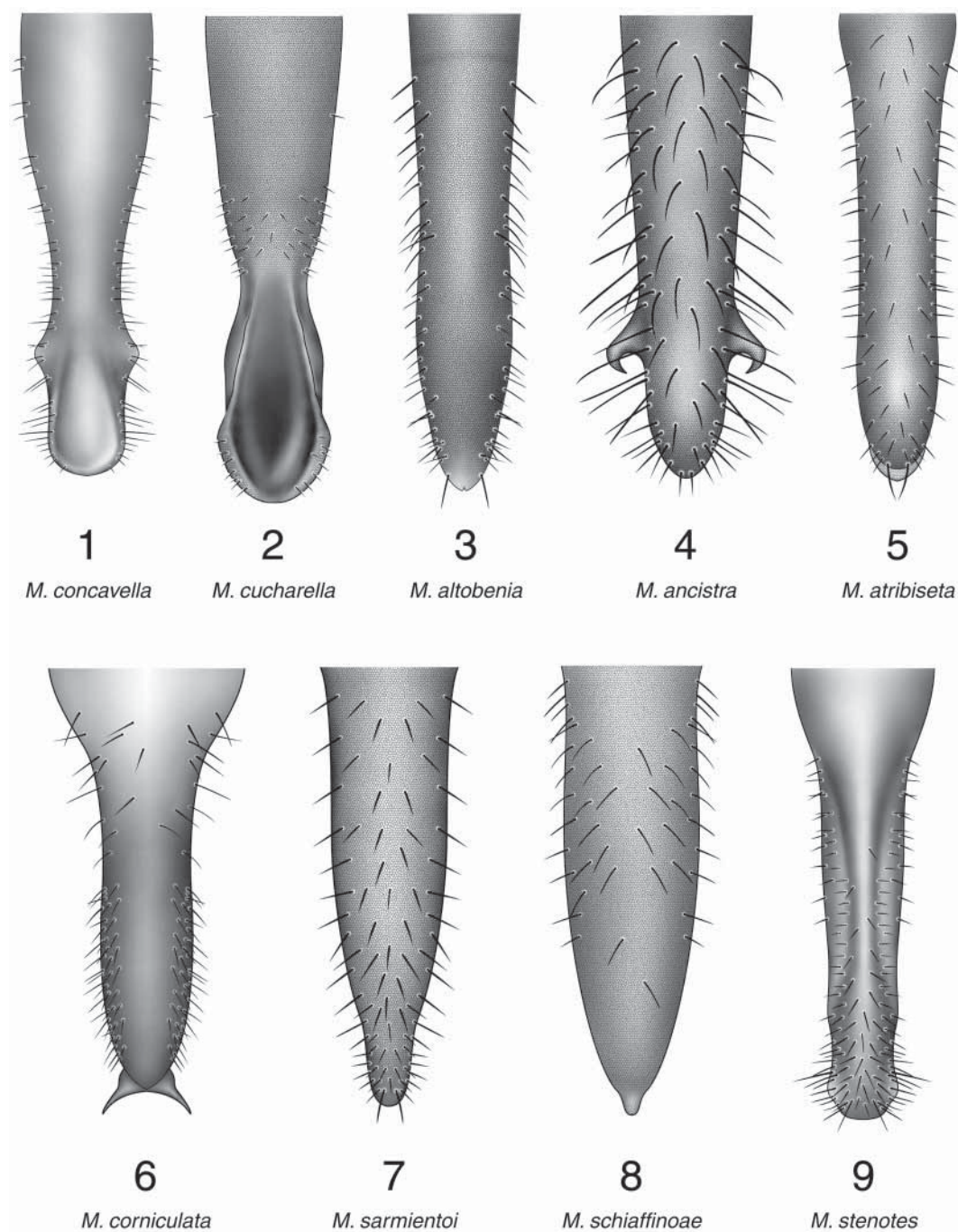
Holotype. ♀, BOLIVIA: La Paz: San Lorenzo Valley, 15.81°S, 67.49°W, 14.iv.2003, B. Brown, attracted to *T. branneri* on rotting bananas [LACM ENT 181149] (CBFC).

PARATYPES. Two ♀, same data as holotype except 16.iv.2003 (LACM).

***Melaloncha cucharella* new species**

Fig. 2

Recognition. This species is easily recognized by the deep, shiny concavity at the dorsal apex of the ovipositor. The somewhat similar *M. concavella* has a similar concavity, it is not shiny and heavily sclerotized, and other details of the ovipositor differ. In the key of Brown (2004a), this species keys to couplet 38 (once the error in couplet 7 is fixed, see above), where it agrees with *M. trua* in having a dorsally concave ovipositor. In *M. cucharella*, however, the ovipositor is much more narrow in dorsal view, and the concavity is much more clearly defined.



FIGURES 1–9. *Melaloncha* (*Udamochiras*) spp. Ovipositors, dorsal.

Description. Female (male unknown). Body length 2.8 mm. Frontal width 0.23 head width. Frons orange, except for black ocellar triangle; with fine reticulate sculpturing and slightly punctate with small black setulae; median furrow faint but present. Dorsal inter-

frontal setae absent. Palpus unmodified. Ocular and genal setae flattened, yellow. Foreleg, including relatively narrow foretarsomeres, brownish yellow. Combined length of foretarsomeres approximately 0.70 tibial length. Tarsal claws on all legs finely bifurcate. Mid- and hind legs brownish yellow. Hind femur without apical darkening. Costa 0.60 wing length. Vein R_{2+3} absent. Abdominal tergites black, with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with few setae. Ovipositor in lateral view strongly curved basally, straightening as it reaches apex; base with distinctive dorsal yellowish brown coloration. In dorsal view, basal one-half of ovipositor with fine reticulate sculpturing; fine lateral setae present. Midsection of ovipositor abruptly laterally compressed. Dorsoapical half of ovipositor deeply concave with surrounding lip, inside of concavity shiny and smooth.

Host. Unknown.

Distribution. Honduras.

Derivation of specific epithet. Based on the Spanish *cuchara* for spoon, referring to the dorsoapical concavity of the ovipositor.

Holotype. ♀, HONDURAS: Olancho: Muralla National Park, 1480 m. 15.09°N, 86.73°W, 4–7.vii.2002, D. Yanega, Malaise trap [LACM ENT 114144] (LACM).

Other *Udamochiras* species (not classified in any subgroups)

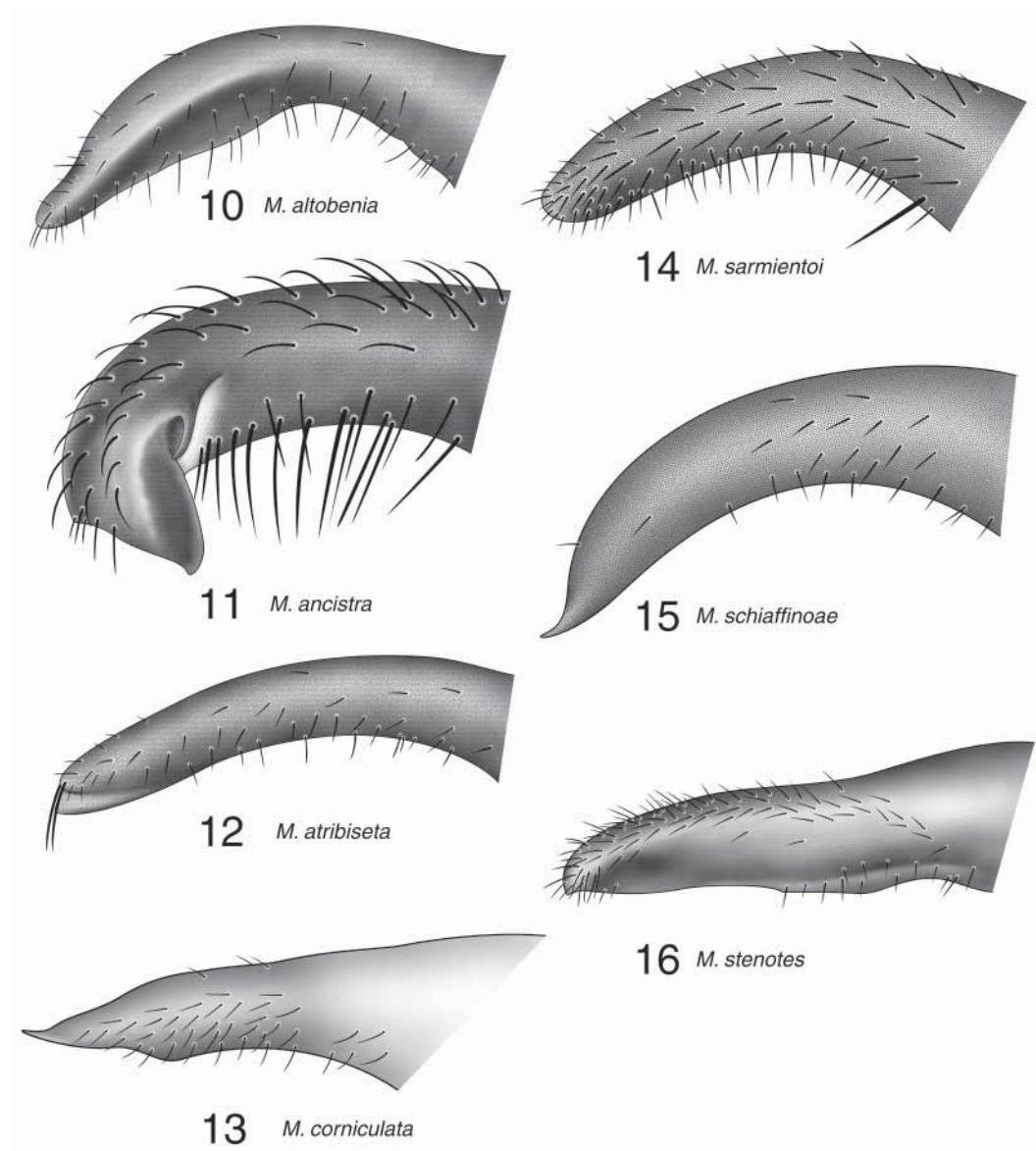
***Melaloncha altobenia* new species**

Figs. 3, 10

Recognition. This species, like *M. sarmientoi* n. sp., keys to couplet 47 (*M. exigua* Brown and *M. falcata* Brown) in Brown (2004a). Unlike all three of these species, its ovipositor has a well-developed lateral keel, making the dorsum of the ovipositor flat, and lacks long, thick ventral setae.

Description. Female (male unknown). Body length 2.5–2.7 mm. Mean frontal width 0.31 head width; no variation. Frons orange with black ocellar triangle and vertex; frons with fine reticulate sculpturing and slightly punctate with small black setulae; median furrow present. Dorsal interfrontal setae present, located slightly ventral to ventral ocellus. Palpus unmodified. Ocular and genal setae yellow, flattened. Foreleg, including foretarsomeres, uniformly brownish yellow. Combined length of foretarsomeres 0.8 tibial length. Tarsal claws on all legs finely bifurcate. Mid- and hind leg brownish yellow; hind femur with dark brown macula at apex. Mean costal length 0.53 wing length, no variation. Vein R_{2+3} absent. Abdominal tergites black with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with several setae. Ovipositor in lateral view evenly curved with preapical deepening, except at dorsoventrally compressed apex. Thin, sparse, dorsal lateral and ventral setae present. Lateral ridge on posterior half of ovipositor form-

ing sides of small ventral keel. In dorsal view, ovipositor parallel-sided with apical narrowing to rounded point.



FIGURES 10–16. *Melaloncha* (*Udamochiras*) spp. Ovipositors, right lateral.

Host. Flies were attracted to a mixed aggregation of *A. mellifera*, *Partamona epiphytophila* Pedro & Camargo, and *Plebeia* sp. Note that previous (Brown, 2004a, 2004b) references to the bee fauna of Cumbre Alto Beni referred to the presence of *Partamona combinata* Pedro & Camargo. This was an incorrect identification, however (verified by Camargo) and all references to *P. combinata* should be changed to *P. epiphytophila*.

Distribution. Bolivia.

Derivation of specific epithet. Based on the name of the type locality, Cumbre Alto Beni in Bolivia.

Holotype. ♀, BOLIVIA: La Paz: 40 km N Caranavi, Cumbre Alto Beni, 15.83°S, 67.56°W, 14.iv.2003, Brown, Marcotte, Zumbado, honey-spray, 1600 m [LACM ENT 180698] (CBFC).

Paratypes. BOLIVIA: La Paz: 40 km N Caranavi, Cumbre Alto Beni, 15.83°S, 67.56°W, 1 ♀, 14.iv.2003, Brown, Marcotte, Zumbado, honey-spray, 1600 m (LACM), 3 ♀, 14.iv.2004, 1 ♀, 19.iv.2004, E. Zumbado, honey spray, 1600 m (CBFC, LACM)

***Melaloncha ancistra* new species**

Figs. 4, 11

Recognition. This species is extremely distinctive, with the pair of lateral hooklike projections positioned at the abrupt ventral curve of the ovipositor, the relatively long dorsal interfrontal setae, and the enlarged ventral setae on the fore-, mid-, and hind femora. In Brown (2004a) it keys to couplet 9, which separates *M. deinocerca* Borgmeier, with three posterior projections on the ovipositor, from the other species where there is a single posterior projection; *M. ancistra*, if considered to have three posterior projections, differs from *M. deinocerca* by the shorter, narrower, hooklike lateral projections and the ventrally curved ovipositor.

Description. Female (male unknown). Body length 3.4 mm. Frontal width 0.32 head width. Frons completely black; punctate with small black setulae, slightly shiny; median furrow present. Dorsal interfrontal setae present, long, located slightly ventral to ventral ocellus. Palpus with several long, black setae. Ocular and genal setae flattened, brown. Foreleg yellowish brown; foretarsomeres slightly darker, slightly broadened. Combined length of foretarsomeres 0.83 tibial length. Tarsal claws on all legs finely bifurcate. Mid- and hind leg brownish yellow; hind femur with dark brown macula at apex. Ventral setae on mid- and hind femora conspicuously enlarged. Costa 0.57 wing length. Vein R_{2+3} absent. Abdominal tergites black, with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with few setae. Ovipositor in lateral view tubular in shape with strong apical curvature. Numerous dorsal and ventral setae present, with ventral setae longer and thicker. Lateral hook-like projections present near abrupt ventral curve of ovipositor. Ovipositor deepens abruptly at apex following abrupt ventral curve. In dorsal view, numerous long setae visible throughout length of ovipositor; ovipositor gradually narrows to down-turned apex.

Host. Unknown.

Distribution. Colombia.

Derivation of specific epithet. Greek *ankistron*, for fishhook, referring to the hooklike processes on the ovipositor.

Holotype. ♀, COLOMBIA: Boyacá: SFF Iguaque, Cabaña Chaina, 5.42°N, 73.45°W, 30.iv.–17.v.2001, P. Reina, Malaise trap, 2600 m, CAP-1753. [LACM ENT 053102] (UNCB).

***Melaloncha atribiseta* new species**

Figs. 5, 12

Recognition. The pair of conspicuous, ventrally curved setae at the apex of the ovipositor is similar to those of *M. biseta* Brown, but the ovipositor of *M. atribiseta* is more sharply curved in lateral view and the frons is black. This species keys to couplet 13 in Brown's (2004a) key, but matches neither choice, as its ovipositor is not laterally flattened like that of *M. nigricorpus* Borgmeier and is not narrowed at the apex like that of *M. anaticula* Brown.

Description. Female (male unknown). Body length 2.1–2.4 mm. Mean frontal width 0.35 head width; range 0.34–0.35. Frons entirely black except in some specimens (including holotype) ventrally apex and area surrounding ventral interfrontal setae, which are both orange; setal bases black, including setal bases of ventral interfrontal setae in those with orange color; with fine reticulate sculpturing and punctate with small black setulae; median furrow faint but present. Dorsal interfrontal setae present, located slightly ventral to ventral ocellus. Palpus unmodified. Ocular and genal setae yellow, flattened. Foreleg, including foretarsomeres, uniformly brownish yellow. Combined length of foretarsomeres approximately 0.9 tibial length. Tarsal claws on all legs finely bifurcate (bifurcation extremely small on some specimens). Mid- and hind leg brownish yellow; hind femur with dark brown macula at apex. Mean costal length 0.53 wing length; range 0.48–0.57. Wing vein R_{2+3} absent. Abdominal tergites black with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment with few fine setae. Ovipositor relatively long, tubular and evenly curved. Short, fine ventral setae and sparse, fine dorsal setae present, mainly at apex of ovipositor. In dorsal view, ovipositor parallel-sided, but with pre-apical and basal broadening. Two large, ventrally curved setae present at apex of ovipositor.

Host. Flies were attracted to a mixed aggregation of *A. mellifera*, *Partamona epiphytophila* and *Plebeia* sp.

Distribution. Bolivia.

Derivation of specific epithet. Based on Latin *ater* for black, and *biseta*, the name of a similar species from which *M. atribiseta* differs by the black frons.

Holotype. ♀, BOLIVIA: La Paz: 40 km N Caranavi, Cumbre Alto Beni, 15.83°S, 67.56°W, 19.iv.2003, Brown, Marcotte, Zumbado, honey-spray, 1600 m [LACM ENT 181197] (CBFC).

Paratypes. BOLIVIA: La Paz: 40 km N Caranavi, Cumbre Alto Beni, 15.83°S, 67.56°W, 1♀, 12.iv.2003, 1♀, 18.iv.2003, 2♀, 19.iv.2003 Brown, Marcotte, Zumbado,

honey-spray, 1600 m (CBFC, LACM), 3 ♀, 19.iv.2004, E. Zumbado, honey spray, 1600 m (CBFC, LACM).

***Melaloncha corniculata* new species**

Figs. 6, 13

Recognition. This is the only *Udamochiras* species with a pair of sharply pointed, hornlike processes extending from the apex of the ovipositor. In Brown's (2004a) key, it possibly could be taken to the first lead of couplet 4 because tergite 6 is yellowish brown laterally. The second lead of this couplet should be amended to state "At least abdominal tergites 1–5 dark-brown to black laterally." If we take the second lead, it could key to *M. simillima* Borgmeier at couplet 24 because of the dark, ventral setae; however, the hornlike processes of *M. corniculata* are distinctive.

Description. Female (male unknown). Body length 2.7–2.9 mm. Mean frontal width 0.25 head width; range 0.23–0.27. Frons orange, except ocellar triangle black; with fine reticulate sculpturing and scattered shallow punctures; median furrow absent. Dorsal interfrontal setae present, located slightly ventral to ventral ocellus. Palpus unmodified. Ocular and genal setae yellow, flattened. Foreleg brownish yellow. Foretarsomeres relatively narrow, slightly darker than tibia. Combined length of foretarsomeres 0.78 tibial length. Tarsal claws on all legs finely bifurcate. Mid- and hind leg brownish yellow; hind femur with dark brown macula at apex. Mean costal length 0.56 wing length; range 0.56–0.57. Vein R_{2+3} absent. Abdominal tergites black (except tergite 6, which is yellowish brown laterally) with anterior band of silver pollinosity. Venter of abdomen gray, except fading to yellow at apex of segment 6; venter of segment 6 with scattered setae. Ovipositor relatively short, slightly dorsoventrally flattened at apex, relatively straight; basally yellow-colored; apically with pair of posteriorly directed horn-like processes. Short, fine, mostly lateral setae present on ovipositor, with some longer, thicker setae ventrally.

Host. Unknown. Flies were attracted to a mixed aggregation of bees, including *A. mellifera*, *Plebeia* spp. and *Trigona spinipes* (F.).

Distribution. Northern Argentina.

Derivation of specific epithet. Latin *corniculata*, meaning horned, and referring to the horn-like processes of the ovipositor.

Holotype. ♀, ARGENTINA: Misiones: Reserva Vida Silvestre Urugua-í, 25.97°S, 54.11°W, 11.xii.2003, B. Brown, G. Kung, bee screen, 400 m [LACM ENT 189260] (MACN).

Paratypes. ARGENTINA: Misiones: Reserva Vida Silvestre Urugua-í, 25.97°S, 54.11°W, 1 ♀, 7–9.xii.2003, B. Brown, G. Kung, Malaise trap #1, 400 m (LACM), 1 ♀, 28.xii.2003, 1 ♀, 29.xii.2003, L. Gonzalez, honey spray, 400 m (LACM, MACN).

***Melaloncha sarmientoi* new species**

Figs. 7, 14

ZOOTAXA

730

Recognition. This species can be recognized by the ovipositor in lateral view, with its strong and even curvature and two thick, long ventral setae near the base. In the key in Brown (2004a), it reaches couplet 37 with *M. exigua* Brown and *M. falcata* Brown, which it resembles. Unlike those species, however, *M. sarmientoi* has an ovipositor that is narrower in lateral view, flatter dorsally, and has long setae only at its ventral base.

Description. Female (male unknown). Body length 2.6 mm. Frontal width 0.32 head width. Frons orange except for black ocellar triangle; with fine reticulate sculpturing with small black setulae; median furrow faint but present. Dorsal interfrontal setae present, located slightly ventral to ventral ocellus. Palpus unmodified. Ocular and genal setae yellow, flattened. Foreleg, including foretarsomeres, uniformly brownish yellow. Combined length of foretarsomeres 0.8 tibial length. Tarsal claws on all legs finely bifurcate. Mid- and hind leg brownish yellow; hind femur with dark brown macula at apex. Costa 0.52 wing length. Vein R_{2+3} absent. Abdominal tergites dark brown, with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with few fine setae. Ovipositor in lateral view tubular with strong and even curvature throughout length, appearing almost bare, although with many short, thin setae. Two conspicuously long, thicker setae present at ventral base of ovipositor. Ovipositor slightly deeper at base and rounded at apex; in dorsal view, parallel-sided with apical narrowing to a rounded point with short, thin lateral setae.

Remarks. The frontal setae of the holotype are aberrant. The dorsal and ventral fronto-orbitals are not parallel (right side slightly below left) and left side of frons has one small and one large setae in the usual position of the ventral interfrontal setae.

Host. Flies were attracted to a mixed aggregation of *A mellifera*, *Partamona epiphytophila* and *Plebeia* sp.

Distribution. Bolivia.

Derivation of specific epithet. Named for Dr. Jaime Sarmiento of the Colección Boliviana de Fauna, who assisted us arranging permits for our work.

Holotype. ♀, BOLIVIA: La Paz: 40 km N Caranavi, Cumbre Alto Beni, 15.83°S, 67.56°W, 13.iv.2003, Brown, Marcotte, Zumbado, honey spray, 1600 m [LACM ENT 181230] (CBFC).

***Melaloncha schiaffinoae* new species**

Figs. 8, 15

Recognition. The ovipositor of this species is most similar to that of *M. apicula* Brown, from which it differs by lacking the apical expansion of the tip of the ovipositor found in that species. In Brown's (2004a) key, if it is taken through the second lead of couplet 23, it

keys out to couplet 37, with *M. sarmientoi*, *M. altobenia*, *M. falcata*, and *M. exigua*. Unlike all but *A. altobenia*, its ovipositor lacks any large, thick ventral setae; unlike *A. altobenia*, the apex of its ovipositor comes to an extremely narrowed, rounded point.

Description. Female (male unknown). Body length 2.4–2.6 mm. Mean frontal width 0.33 head width; range 0.32–0.35. Frons orange, except ocellar triangle black; with fine reticulate sculpturing and scattered shallow punctures; median furrow absent. Dorsal interfrontal setae present, located slightly ventral to ventral ocellus. Palpus unmodified. Ocular and genal setae yellow, flattened. Foreleg brownish yellow. Foretarsomeres slightly thickened, slightly darker than tibia. Combined length of foretarsomeres 0.70 tibial length. Tarsal claws on all legs bifurcate, on foreleg deeply so. Mid- and hind leg brownish yellow; hind femur with dark brown macula at apex. Mean costal length 0.54 wing length; range 0.53–0.55. Vein R_{2+3} absent. Abdominal tergites black with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with scattered setae. Ovipositor with slight lateral keel, slightly dorsoventrally flattened at apex, evenly curved ventrally in lateral view; apically narrowed to a slightly upturned, rounded point. Short, fine, lateral and ventral setae present on ovipositor.

Host. Unknown. Flies were attracted to an aggregation of *T. spinipes* and *A. mellifera* at Iguazu and mixed aggregations of bees at Urugua-í, mostly of *A. mellifera* and *Plebeia* sp.

Distribution. Northern Argentina.

Derivation of specific epithet. Named for Karina Schiaffino of the Centro de Investigaciones de Ecología Subtropical, who graciously hosted us during our field work at Iguazu National Park.

Holotype. ♀, ARGENTINA: Misiones: Iguazu National Park, 25.68°S, 54.45°W, 5.xii.2003, B. Brown, G. Kung, *Syagrus* palm flowers, 400 m [LACM ENT 188083] (MACN).

Paratypes. ARGENTINA: Misiones: Iguazu National Park, 25.68°S, 54.45°W, 3♀, 4.xii.2003, 1♀, 5.xii.2003, 3♀, 6.xii.2003, B. Brown, G. Kung, *Syagrus* palm flowers, 200 m (LACM, MACN), Reserva Vida Silvestre Urugua-í, 25.97°S, 54.11°W, 1♀, 17.xii.2003, 2♀, 18.xii.2003, 2♀, 22.xii.2003, 1♀, 27.xii.2003, 1♀, 29.xii.2003, L. Gonzalez, G. Kung, honey spray, 200 m (LACM, MACN).

***Melaloncha stenotes* new species**

Figs. 9, 16

Recognition. The ovipositor of this species is similar to that of *M. compressicauda* Brown in dorsal view (Brown, 2004a: fig. 68), with the apex of the ovipositor dorsoventrally flattened and slightly rounded. The ovipositor of *M. stenotes*, however, is much less deep, and in dorsal view is not as narrow as in *M. compressicauda*. It keys to couplet 31 in Brown

(2004a), where it is somewhat similar to the characters diagnosing *M. horologia* Brown, but has a shinier, deeper ovipositor that is narrower in dorsal view than in that species.

Description. Female (male unknown). Body length 2.5–2.9 mm. Mean frontal width 0.31 head width; range 0.30–0.32. Frons orange except for black ocellar triangle and vertex; shiny and punctate with small black setulae; median furrow absent. Dorsal interfrontal setae present, located slightly ventral to ventral ocellus. Palpus unmodified. Ocular and genal setae flattened, yellow. Foreleg, including slightly enlarged foretarsomeres, uniformly brownish yellow. Combined length of foretarsomeres 0.9 tibial length. Tarsal claws on all legs finely bifurcate. Mid- and hind legs brownish yellow; hind femur with dark brown macula at apex. Mean costal length 0.54 wing length; range 0.56–0.52. Vein R_{2+3} absent. Abdominal tergites black, with anterior band of silver pollinosity. Venter of abdomen gray; venter of segment 6 with few extremely fine setae. Ovipositor shiny, straight, and somewhat squared (ventrally flattened) throughout length in lateral view. Lateroventral ridge extends length of ovipositor, forming a lateroventral cavity at apex. Short dorsal setae present at apex; tip of the ovipositor curved ventrally. In dorsal view, short fine lateral setae with medium length lateral setae at the apex of ovipositor. Ovipositor broader at base (approximately twice the width of the apex). Dorsal midsection of ovipositor laterally compressed to form distinct ridge on dorsum. Apex of ovipositor dorsoventrally flattened and slightly rounded. In ventral view, deep groove on apical one-half of ovipositor.

Distribution. Costa Rica.

Derivation of specific epithet. Greek *stenotes*, narrowness, referring to the narrowed dorsal midsection of the ovipositor.

Holotype. ♀, COSTA RICA: Guanacaste Province, Santa Cruz, Quebrada Balsar, 12.i.2000, Y. Cardenas, 160m, sweeping, #55269 [INB0003484362] (INBC).

Paratype. COSTA RICA: Guanacaste Province, Santa Cruz, Quebrada Balsar, 1♀ 12.i.2000, Y. Cardenas, 160m, sweeping, #55269 (INBC).

Acknowledgments

We thank L. Mui for skillfully preparing the figures. For field assistance we thank G. Kung, S. Marcotte, and E. Zumbado; for technical assistance we thank V. Berezovskiy. For help obtaining collecting and export permits, we are grateful to L. Elizalde, P. Folgarait, K. Schiaffino, M. DiBitetti, and A. Bachmann in Argentina, J. Sarmiento in Bolivia, M. Zumbado in Costa Rica, and F. Fernandez in Colombia. For identification of host bees we thank D. Roubik, C. Rasmussen and J. Camargo. This work was supported by National Science Foundation (NSF) grant DEB-0090031 to B. Brown and a Research Experience for Undergraduates supplement to support L. Gonzalez. Collections made in Colombia were facilitated by NSF grants DEB-9972024 and DEB-0205982 to M. Sharkey and B. Brown. Work in Costa Rica was based in part by support to INBio by the Biodiversity

Resources Development Project (CR-GE-39876), funded by Global Environmental Facilities through its implementing agency the World Bank.

References

- Brown, B.V. (2001) Beginning to study the bee-killing flies, the parasitoid genus *Melaloncha* Brues. *Phorid Newsletter*, 9, 1–5.
- Brown, B.V. (2004a) Revision of the subgenus *Udamochiras* of *Melaloncha* bee-killing flies (Diptera: Phoridae). *Zoological Journal of the Linnean Society*, 140, 1–42.
- Brown, B.V. (2004b) Revision of the *Melaloncha cingulata*-group of bee-killing flies (Diptera: Phoridae). *Annals of the Entomological Society of America*, 97, 386–392.
- Brues, C.T. (1904) A monograph of the North American Phoridae. *Transactions of the American Entomological Society*, 29 (1903), 331–404.
- Enderlein, G. (1912) Die Phoridenfauna Süd-Brasiliens. *Stettiner Entomologische Zeitung*, 73, 16–45.